REMARKS

Claims 1-14, 16-17, 19-21, and 24-27 are pending, claims 1-6 and 10-14 having been previously withdrawn. The Office Action dated October 30, 2008 in this Application has been carefully considered. Claims 7-9, 16, 17, and 19-21 have been amended in this Response. Claims 24-27 have been added in this Response. The above amendments and the following remarks are presented in a sincere attempt to place this Application in condition for allowance. Reconsideration and allowance are respectfully requested in light of the above amendments and following remarks.

Applicant wishes to thank the Examiner for the courtesy of the interview conducted on January 15, 2008. During the interview, proposed claim amendments were discussed. Tentative agreement was reached that such amendments would overcome the Chapman reference. Additionally, how the references generally involve bandwidth allocation/reservation in router/switch systems, rather than among computers or processing units, was discussed. Additionally, a possible 35 U.S.C. § 101 rejection to the proposed Claim 8 and revisions to overcome the possible rejection were discussed. Additionally, the Examiner requested that the specification be amended to state the application numbers of the cross-referenced applications.

Objection to Specification and 35 U.S.C. § 112 Rejections of Claims 9 and 19

The specification was objected to as failing to provide proper antecedent basis for Claim 9 limitation of "the computer program having a medium with a computer program embodied thereon." Claims 9 and 19 stand rejected under 35 U.S.C. § 112 as failing to comply with the enablement requirement for the Claim 9 limitation of "the computer program having a medium with a computer program embodied thereon."

Claim 9 has been amended to recite "the computer program product embodied on a tangible computer readable medium." Support is found in paragraph [0014] of the specification, which has been amended to recite "a computer program product embodied on a tangible computer readable

medium". Applicants respectfully request that the objection to the specification and the rejections of Claims 9 and 19 under 35 U.S.C. § 112 be withdrawn.

35 U.S.C. § 101 Rejection

Claims 9 and 19 stand rejected under 35 U.S.C. § 101 as non-statutory subject matter. Claim 9 has been amended to recite "[a] computer program product." Claim 19 has been amended to recite "[t]he computer program product of Claim 9." Applicants respectfully request that the rejections of Claim 9 and Claim 19 under 35 U.S.C. § 101 be withdrawn.

35 U.S.C. § 112 Rejections

Claim 20 stands rejected under 35 U.S.C. § 112 as failing to comply with the enablement requirement. The Examiner stated that the specification did not contain information regarding the limitations "payload class" and "class restriction status." Claim 20 has been amended and no longer recites "payload class" and "class restriction status." Applicants respectfully request that the rejection of Claim 20 under 35 U.S.C. § 112 be withdrawn.

Claim 7 stands rejected under 35 U.S.C. § 112 as being indefinite. The Examiner stated there was insufficient antecedent basis for the limitation "said communication path." Claim 7 has been amended to recite "a multiplex communication path." Applicants respectfully request that the rejection of Claim 7 under 35 U.S.C. § 112 be withdrawn.

Claim 9 stands rejected under 35 U.S.C. § 112 as being indefinite. The Examiner stated: "It is unclear if 'a computer program' in line 27 is related to 'a computer program' in line 25." Claim 9 has been amended to recite "a computer program product" in line 25 and the recitation of "a computer program" in line 27 has been removed. Applicants respectfully request that the rejection of Claim 9 under 35 U.S.C. § 112 be withdrawn.

Claim 15 stands rejected under 35 U.S.C. § 112 as being indefinite. Claim 15 has been

cancelled in this Response. Applicants respectfully request that the rejection of Claim 15 under 35

U.S.C. § 112 be withdrawn.

Claim 19 stands rejected under 35 U.S.C. § 112 as being indefinite. The Examiner stated:

"It is unclear if 'a bus' in line 19 is related to 'a bus' in line 8." Claim 19 has been amended and the

recitation of "a bus" in line 19 has been removed. The Examiner also stated Claim 19 was

indefinite because it did not define "a number N." Claim 19 has been amended and the recitation of

a number N has been removed. Applicants respectfully request that the rejection of Claim 19 under

35 U.S.C. § 112 be withdrawn.

35 U.S.C. § 102 Rejections

Claim 8 stands rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No.

6,628,609 to Chapman et al. ("Chapman"). In light of the amendments submitted herewith,

Applicant respectfully submits that the rejections have been overcome. Accordingly, Applicant

respectfully request that the rejections be withdrawn.

Claim 8 has been amended to recite:

8.   A method of multiplex communication path access control, comprising:
requesting, by a processing unit, an amount of path bandwidth to be reserved for use by a
first entity;
determining, by an operating system, whether the amount of path bandwidth is available to
be reserved;
reserving, by the operating system, the amount of path bandwidth for use by the first entity
as a number of credits over an operational period;
assigning, by the operating system, a unique identity to the first entity;
notifying, by the operating system, the first entity of the unique identity and the reservation
of bandwidth;
notifying, by the operating system, a load shaper of the unique identity;
notifying, by the operating system, the load shaper of the reservation of bandwidth by
informing the load shaper of the number of credits over the operational period reserved for
use by the first entity;
resetting, by the load shaper, a counter to the number of credits at the beginning of a time
frame, wherein the time frame has a length equal to the operational period;

receiving, by the load shaper, a path use request from the first entity, the path use request comprising the unique identity;

if the counter has at least one credit remaining, enqueuing, by the load shaper, the path use request for transmission on a multiplex communication path; and

if the counter has at least one credit remaining, decrementing, by the load shaper, the counter.

Support for this Amendment can be found, among other places, at paragraphs [0015]-[0022] of the Application as originally filed.

The Office Action cited the data packet transmission request shown in part 520 of Figure 5 of Chapman for the prior limitation in Claims 15 and 19 of "submitting a request, from a BW managed first entity, for a given bandwidth to an assignment entity." The cited request is a request from a queue for an instruction to release a data packet for transmission over a logical pathway. Chapman, column 15, lines 11-18. The logical pathway has minimum and maximum bandwidth allocations. Chapman figure 4 and column 12, line 66 to column 13, line 20. The Office Action states that because the logical pathway has a predetermined bandwidth allocation, the request is "for a given bandwidth."

Claim 8 now recites: "requesting, by a processing unit, an amount of path bandwidth to be reserved for use by a first entity," "determining, by an operating system, whether the amount of path bandwidth is available to be reserved," and "reserving, by the operating system, the amount of path bandwidth for use by the first entity as a number of credits over an operational period." These limitations are not disclosed by Chapman. The cited request for an instruction to release a data packet over a logical pathway is not a request for "an amount of path bandwidth to be reserved..." While the logical pathway has a predetermined bandwidth allocation, Chapman does not disclose how that allocation is reserved. Chapman refers to a table containing the bandwidth allocations for the logical pathways. Chapman figure 4 and column 12, line 66 to column 13, line 20. However, Chapman does not disclose how the bandwidth allocations become stored in the table. Thus,

Chapman does not disclose the "requesting…," "determining…," and "reserving…" limitations of Claim 8.

It could possibly be argued that the cited Chapman data packet transmission request is a request for "an amount of path bandwidth to be reserved," in that the request is for the reservation of the logical pathway bandwidth so that the next data packet may be transmitted. However, in that case the logical pathway bandwidth would not be reserved as "a number of credits over an operational period." Even if the instruction to send a data packet is seen as the reservation of bandwidth as a credit, Chapman does not disclose an associated operational period. Further, Chapman would not disclose "resetting, by the load shaper, a counter to the number of credits at the beginning of a time frame, wherein the time frame has a length equal to the operational period" because the instruction is to send only one data packet. Thus, Chapman would not disclose such a counter because there could never be more than one data packet sent following an instruction to send a data packet. There would be no reason to reset a counter to a number of credits at the beginning of a time frame when only one data packet could be sent.

Further, the limitations of Claim 8 are not disclosed by the other cited references, U.S. Patent No. 7,006,440 to Agrawal et al. ("Agrawal"), U.S. Patent No. 7,224,671 to Lee et al. ("Lee"), U.S Publication No. 2004/0042399 to Bly et al. ("Bly"), U.S. Patent No. 6,798,743 to Ma et al. ("Ma"), and U.S. Patent No. 6,304,552 to Chapman et al. ("Chapman 552").

Agrawal discloses that bandwidth may be allocated to customers according to Service Level Agreements (SLAs). Agrawal, column 1, lines 16-20. However, Agrawal does not disclose details regarding the creation of the SLAs. Agrawal does not disclose that the creation of the SLAs includes the limitations of "requesting, by a processing unit, an amount of path bandwidth to be reserved for use by a first entity," "determining, by an operating system, whether the amount of path

bandwidth is available to be reserved," or "reserving, by the operating system, the amount of path

bandwidth for use by the first entity as a number of credits over an operational period." In

particular, Agrawal does not disclose the use of "a processing unit" or "an operating system" in the

creation of the SLAs.

Lee discloses allocating bandwidth to an input-output port connection. Lee, column 9, lines

29-31. The input port may send data over the connection to the output port only if the allocated

bandwidth has not been exhausted. Lee, column 9, lines 45-54. The path bandwidth is allocated

"according to a time slot rate to police and shape the input port to output port traffic load." Lee,

column 9, lines 34-36. However, Lee does not disclose that an amount of path bandwidth is

requested to be reserved for use by the input-output port connection. Lee discloses that an amount

of bandwidth is allocated, but Lee does not disclose that the amount is an amount requested to be

reserved for use by the input-output connection.

Bly discloses allocating bandwidth to burst groups and to queues. Bly paragraph [0019].

The burst groups "are given a selectable allocation of credit at a steady rate." Bly paragraph [0019].

The credit is bandwidth credit. Bly abstract. Bly discloses allocating credit to burst groups at a rate

N. Bly paragraphs [0032]-[0036]. However, Bly does not disclose that the amount of bandwidth

allocated is an amount requested to be reserved.

The queues request credit from the burst groups and the burst groups respond with available

credit. Bly figure 8; Bly paragraph [0030]. It could be argued that this is a request for an amount of

bandwidth to be reserved for use by a queue, a determination that the amount of bandwidth is

available to be reserved, and a reservation of the amount of path bandwidth for use by the queue.

However, while the queue receives credits from a burst group, the credits are not credits over an

operational period. To receive additional credits, the queue must request the additional credits. *See*

Bly figure 8; Bly paragraph [0030]. Further, the queues may accumulate credits up to an upper bound. Bly paragraph [0038]. Therefore, Bly does not disclose the limitation of "reserving, by the operating system, the amount of path bandwidth for use by the first entity as a number of credits over an operational period." Additionally, because Bly does not disclose credits over an operational period, Bly does not disclose the limitation of "resetting, by the load shaper, a counter to the number of credits at the beginning of a time frame, wherein the time frame has a length equal to the operational period."

Ma discloses the processing of packets based on whether the packets are delay-sensitive. Ma, column 5, lines 38-43. A packet that is delay-sensitive is processed and routed immediately, while a packet which is not delay-sensitive is stored for later processing. Ma, column 5, lines 34-40. It could be argued that the priority in processing means that bandwidth is reserved for delay-sensitive packets. However, Ma does not disclose that an *amount* of bandwidth is reserved for delay-sensitive packets. In Ma, delay-sensitive packets are always given priority over packets which are not delay-sensitive. Thus, Ma would not disclose the limitations of "requesting, by a processing unit, an amount of path bandwidth to be reserved for use by a first entity," "determining, by an operating system, whether the amount of path bandwidth is available to be reserved," or "reserving, by the operating system, the amount of path bandwidth for use by the first entity as a number of credits over an operational period."

Chapman 552, like Chapman, refers to a table containing the bandwidth allocations for the logical pathways. Chapman 552 figure 4 and column 9, lines 2-27. Chapman 552 also does not disclose how the bandwidth allocations become stored in the table. Thus, Chapman 552 also does not disclose the "requesting…," "determining…," and "reserving…" limitations of Claim 8.

Applicants therefore submit that amended Claim 8 is clearly and precisely distinguishable over the cited references in a patentable sense, and is therefore allowable over these references. Accordingly, Applicants respectfully request that the rejection of amended Claim 8 under 35 U.S.C. § 102(e) be withdrawn and that Claim 8 be allowed.

Claim 7 stands rejected under 35 U.S.C. § 102(e) as anticipated by Chapman. In light of the amendments submitted herewith, Applicant respectfully submits that the rejections have been overcome. Accordingly, Applicant respectfully request that the rejections be withdrawn.

Claim 7 has been amended to recite:

7.   A shaper apparatus for multiplex communication path access control, comprising:
a processing unit configured to request an amount of path bandwidth to be reserved for use by a first entity;
an operating system configured to:
         determine whether the amount of path bandwidth is available to be reserved;
         reserve the amount of path bandwidth for use by the first entity as a number of credits over an operational period;
         assign a unique identity to the first entity; and
         notify the first entity of the unique identity and the reservation of bandwidth;
         notify a load shaper of the unique identity;
         notify the load shaper of the reservation of bandwidth by informing the load shaper of the number of credits over the operational period reserved for use by the first entity; and
         wherein the load shaper is configured to:
         reset a counter to the number of credits at the beginning of a time frame, wherein the time frame has a length equal to the operational period;
         receive a path use request from the first entity, the path use request comprising the unique identity;
         if the counter has at least one credit remaining, enqueue the path use request for transmission on a multiplex communication path; and
         if the counter has at least one credit remaining, decrement the counter.

Support for this Amendment can be found, among other places, at paragraphs [0015]-[0022] of the Application as originally filed.

As discussed above with respect to Claim 8, Chapman does not disclose "request an amount of path bandwidth to be reserved for use by a first entity," "determine whether the amount of path

bandwidth is available to be reserved," and "reserve the amount of path bandwidth for use by the

first entity as a number of credits over an operational period."

Applicants therefore submit that amended Claim 7 is clearly and precisely distinguishable

over the cited references in a patentable sense, and is therefore allowable over these references.

Accordingly, Applicants respectfully request that the rejection of amended Claim 7 under 35 U.S.C.

§ 102(e) be withdrawn and that Claim 7 be allowed.

Claim 9 stands rejected under 35 U.S.C. § 102(e) as anticipated by Chapman. In light of the

amendments submitted herewith, Applicant respectfully submits that the rejections have been

overcome. Accordingly, Applicant respectfully request that the rejections be withdrawn.

Claim 9 has been amended to recite:

9.   (Currently Amended) A computer program product for multiplex communication
path access control, the computer program product embodied on a tangible computer readable
medium, the computer program product comprising:
    computer code for requesting an amount of path bandwidth to be reserved for use by a first
entity;
    computer code for determining whether the amount of path bandwidth is available to be
reserved;
    computer code for reserving the amount of path bandwidth for use by the first entity as a
    number of credits over an operational period;
    computer code for assigning a unique identity to the first entity;
    computer code for notifying the first entity of the unique identity and the reservation of
bandwidth;
    computer code for notifying a load shaper of the unique identity;
    computer code for notifying the load shaper of the reservation of bandwidth by informing
    the load shaper of the number of credits over the operational period reserved for use by the
    first entity;
    computer code for resetting a counter to the number of credits at the beginning of a time
    frame, wherein the time frame has a length equal to the operational period;
    computer code for receiving, by the load shaper, a path use request from the first entity, the
    path use request comprising the unique identity; and
    computer code for, if the counter has at least one credit remaining, enqueuing the path use
    request for transmission on a multiplex communication path; and
    computer code for, if the counter has at least one credit remaining, decrementing the
    counter.

Support for this Amendment can be found, among other places, at paragraphs [0015]-[0022] of the Application as originally filed.

As discussed above with respect to Claim 8, Chapman does not disclose "requesting an amount of path bandwidth to be reserved for use by a first entity," "determining whether the amount of path bandwidth is available to be reserved," and "reserving the amount of path bandwidth for use by the first entity as a number of credits over an operational period."

Applicants therefore submit that amended Claim 9 is clearly and precisely distinguishable over the cited references in a patentable sense, and is therefore allowable over these references. Accordingly, Applicants respectfully request that the rejection of amended Claim 9 under 35 U.S.C. § 102(e) be withdrawn and that Claim 9 be allowed.

35 U.S.C. § 103 Rejections

Claims 16-17 stand rejected under 35 U.S.C. § 103(a) as anticipated by Chapman in view of U.S. Patent No. 6,798,743 to Ma et al. ("Ma") and U.S. Patent No. 6,304,552 to Chapman et al. ("Chapman 552"). However, Claims 16-17 depend from and further limit Claim 8. Hence, for at least the aforementioned reasons that Claim 8 should be deemed in condition for allowance, Claims 16-17 should be deemed in condition for allowance. Applicants respectfully request that the rejection of dependent Claims 16-17 also be withdrawn.

Claim 16 has been amended in this Response. Support for this amendment can be found, among other places, at paragraph [0020] of the specification.

Claim 17 has been amended in this Response. Support for this amendment can be found, among other places, at paragraph [0022] of the specification.

Claim 19 stands rejected under 35 U.S.C. § 103(a) as anticipated by Chapman in view of U.S. Patent No. 7,006,440 to Agrawal et al. ("Agrawal") and U.S. Patent No. 7,224,671 to Lee et al.

("Lee"). However, Claim 19 depends from and further limits Claim 9. Hence, for at least the aforementioned reasons that Claim 9 should be deemed in condition for allowance, Claim 19 should be deemed in condition for allowance. Applicants respectfully request that the rejection of dependent Claim 19 also be withdrawn.

Claim 19 has been amended in this Response. Support for this amendment can be found, among other places, at paragraph [0020] of the specification.

Claim 20 stands rejected under 35 U.S.C. § 103(a) as anticipated by Chapman in view of U.S Publication No. 2004/0042399 to Bly et al. ("Bly"). However, Claim 20 depends from and further limits Claim 7. Hence, for at least the aforementioned reasons that Claim 7 should be deemed in condition for allowance, Claim 20 should be deemed in condition for allowance. Applicants respectfully request that the rejection of dependent Claim 20 also be withdrawn.

Claim 20 has been amended in this Response. Support for this amendment can be found, among other places, at paragraph [0020] of the specification.

Claim 21 stands rejected under 35 U.S.C. § 103(a) as anticipated by Chapman in view of Lee and Chapman 552. However, Claim 21 depends from and further limits Claim 7. Hence, for at least the aforementioned reasons that Claim 7 should be deemed in condition for allowance, Claim 21 should be deemed in condition for allowance. Applicants respectfully request that the rejection of dependent Claim 21 also be withdrawn.

Claim 21 has been amended in this Response. Support for this amendment can be found, among other places, at paragraph [0022] of the specification.

Claim 24

Claim 24 has been added in this Response. Support for Claim 24 can be found, among other places, at paragraph [0022] of the specification. Claim 24 depends from and further limits Claim 9.

Hence, for at least the aforementioned reasons that Claim 9 should be deemed in condition for allowance, Claim 24 should be deemed in condition for allowance. Applicants respectfully request that the rejection of dependent Claim 24 also be withdrawn.

Claims 25-27

Claims 25-27 have been added in this Response. Support for Claims 25-27 can be found, among other places, at paragraphs [0015]-[0018] of the specification. Claims 25-27 respectively depend from and further limit Claim 7-9. Hence, for at least the aforementioned reasons that Claims 7-9 should be deemed in condition for allowance, Claims 25-27 should be deemed in condition for allowance. Applicants respectfully request that Claims 25-27 be allowed.

In addition, Claims 25-27 each recite the limitations:

the multiplex communication path is a bus;
the first entity is a computer application processed by the processing unit;
the first entity is in a computer system; and
the path use request comprises a request to transmit a data packet to a device in the same computer system as the first entity.

The Office Action cites column 10, lines 21-22 of Chapman as disclosing "the multiplex communication path is a bus." Assuming for the sake of argument that this is the case, none of the cited references disclose "the first entity is a computer application processed by the processing unit" and "the path use request comprises a request to transmit a data packet to a device in the same computer system as the first entity." Chapman, Agrawal, Lee, Ma, and Chapman 552 all disclose transmission of data with reference to a network device such as a router or switch, which suggests the data is transmitted across computer systems. Chapman abstract ("a switch for processing data units"); Agrawal column 1, lines 38-41 ("high-end routers"); Lee column 1, lines 12-13 ("[a] network processing device, such as a router or switch,…"); Ma abstract ("routing traffic in a packet-switched, integrated services network"); Chapman 552 abstract ("a lossy switch"). Bly discloses the

transmission of data with reference to networks, which also suggests the data is transmitted across computer systems. Bly paragraph [0001]. Because the cited references are all directed to the transmission of data across computer systems, they do not disclose "the path use request comprises a request to transmit a data packet to a device in the same computer system as the first entity."

Applicants have now made an earnest attempt to place this Application in condition for allowance. For the foregoing reasons and for other reasons clearly apparent, Applicants respectfully request full allowance of Claims 7-9, 16, 17, 19-21, and 24-27.

Applicants would like to bring to the attention of the Examiner for consideration, an Information Disclosure Statement filed concurrently with this response.

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Applicants hereby request an extension of time for making this reply and hereby authorize the Director to charge the required fee to Deposit Account No. 50-0605 of CARR LLP. Applicants do not believe that any other fees are due; however, in the event that any other fees are due, the Director is hereby authorized to charge any required fees due (other than issue fees), and to credit any overpayment made, in connection with the filing of this paper to Deposit Account No. 50-0605 of CARR LLP.

Should the Examiner deem that any further amendment is desirable to place this application in condition for allowance, the Examiner is invited to telephone the undersigned at the number listed below.

Respectfully submitted,

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